

AMENDMENT TO THE CLAIMS

IN THE CLAIMS:

Please **AMEND** claims 10, 11 and 18 as follows.

Please **ADD** claims 19-21 as follows.

A copy of all pending claims and a status of the claims is provided below.

1-9 (Cancelled).

10. (currently amended) A gravity die casting apparatus for performing a casting while an oxide film formed on a surface of a molten metal is reduced by allowing the molten metal and a reducing compound to be contacted with each other, comprising:

a metallic molding die having a cavity for receiving the molten metal, a sprue from which the molten metal is poured and a feeder head portion arranged between the sprue and the cavity,

wherein a difference of heat insulation is partially provided between the feeder head portion and the cavity such that the molten metal filled in the cavity and the feeder head portion is sequentially solidified in a direction of from a terminal portion of the cavity to the feeder head portion, wherein

surface areas of the feeder head portion, being different than a body of the feeder head portion, have a thermal conductivity which provides a cooling rate of molten metal poured into the feeder head portion of about 500° C/min. or less, and

surface areas of the cavity have a thermal conductivity which provides a cooling rate of the molten metal filled in an area of the cavity of about 500°C/min. or more.

11. (currently amended) The casting apparatus as set forth in claim 10, wherein the cavity of the molding die comprises a narrow portion arranged halfway between a feeder head portion side inlet ~~thereof~~ which is connected with the feeder head portion and the terminal portion ~~thereof and~~ having, the narrow portion has a smaller cross-sectional area than the terminal portion;

wherein the feeder head portion and the narrow portion are formed such as to have a higher heat insulating property than the terminal portion.

12. (Original) The casting apparatus as set forth in Claim 11, wherein a part of the molding die defining the feeder head portion is formed by a material that has a higher heat insulating property than a material defining the terminal portion of the cavity.

13. (Original) The casting apparatus as set forth in claim 11, wherein a part of the molding die defining the narrow portion of the cavity is formed by a material that has a higher heat insulating property than a material defining the terminal portion of the cavity.

14. (Original) The casting apparatus as set forth in claim 11, wherein an inner wall surface of at least one of the feeder head portion and the narrow portion of the cavity is subjected to a heat insulating treatment by applying a heat insulating coating agent thereto, and

wherein a surface of an inner wall of the terminal portion of the cavity is free from the heat insulating treatment.

15. (Original) The casting apparatus as set forth in claim 14, wherein the heat insulating coating agent is non-reactive to a reducing compound which contacts the molten metal poured in the cavity.

16. (Original) The casting apparatus as set forth in claim 10, wherein a part of the molding die defining the feeder head portion is constructed such as to be detachable from a cavity portion of the molding die.

17. (Original) The casting apparatus as set forth in claim 10, wherein a part of the molding die defining the feeder head portion forms a molten metal-introducing passage that introduces the molten metal into the feeder head portion, and an introducing passage that introduces raw

materials of the reducing compound into the cavity such that the reducing compound is generated in the cavity.

18. (currently amended) The casting apparatus as set forth in claim 10, wherein the molding die has heat insulating which provides ~~is formed such that~~ a difference of a cooling rate between the molten metal filled in the feeder head portion and the molten metal filled in the terminal portion of the cavity at the time of solidification of the molten metal ~~is set~~ to be 200°C/min or more.

19. (New) A gravity die casting apparatus for performing a casting while an oxide film formed on a surface of a molten metal is reduced by allowing the molten metal and a reducing compound to be contacted with each other, comprising:

- a metallic molding die having a cavity for receiving the molten metal;
- a sprue from which the molten metal is poured;
- a feeder head portion arranged between the sprue and the cavity; and
- a narrow portion arranged between a feeder head portion side inlet connected with the feeder head portion and a terminal portion, the narrow portion has a smaller cross-sectional area than the terminal portion, and the feeder head portion and the narrow portion have a higher heat insulating than the terminal portion,

wherein surface areas of the narrow portion, being different than a body portion of the feeder head portion, have a thermal conductivity which provides a cooling rate of molten metal of about 500° C/min. or less, and

surface areas of the cavity have a thermal conductivity which provides a cooling rate of the molten metal filled in an area of the cavity of about 500°C/min. or more.

20. (New) The casting apparatus of claim 19, wherein the molding die comprises a lower die, an upper die and an adapter, the upper die includes a metallic plate and an inserting plate having a higher heat insulating than metal, the cavity is formed in the lower die and the metallic plate of the upper die.

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21. (New) The casting apparatus of claim 20, wherein a capacity of the feeder head portion is set at from 5% to 20% of the capacity of the cavity.